Vessel Traffic Service Puget Sound
Y2K Business Continuity and Contingency Plan Exercise
Conducted August 18, 1999

Executive Summary

Vessel Traffic Service Puget Sound (VTSPS) exercised the unit's Business Continuity Contingency Plan (BCCP) on August 18, 1999 for a period of 4 hours. The exercise tested key operational aspects of the contingency plan by imposing a simulated failure of the Wide Area Network (WAN), thereby preventing remote radar and voice communications from reaching the Vessel Traffic Center (VTC). In addition, it tested the communications contingency plan agreement between the United States and Canadian Vessel Traffic Services (CVTS). The exercise involved the coordinated efforts of five U.S. remote radar sites, two Canadian remote radar sites, and fully staffed VTCs located in Seattle Washington, Tofino Canada, and Vancouver Canada.

The exercise demonstrated that effective vessel traffic management is feasible from selected remote radar locations with an acceptable level of service and safety during a Year 2000 (Y2K) emergency. However, the rudimentary analog maintenance radar and the lack of sophisticated traffic management tools at the remote sites does not provide for the same level of confidence in aggressively managing traffic and providing detailed traffic advisories. To keep track of vessels as they transit gaps in radar coverage areas, use of geographic call-in points is required.

Concurrent with this exercise, the Marine Safety Office (MSO) of Puget Sound tested segments of its contingency plans to evaluate internal communication procedures with VTSPS and to assess its ability to maintain operational controls in the event of failed telephone systems.

Background

VTSPS is an operational command that relies heavily on technology to accomplish its mission. This technology consists of three major components: (1) remote site sensors consisting of radar, cameras, and very high frequency (VHF) radios; (2) software and hardware located at the VTC used to view and manipulate remote sensor data; and (3) a WAN that links the remote sites to the VTC. In response to the potential threat of Y2K failures of key technology components, VTSPS has completed a risk assessment and developed a BCCP to ensure that the control of vessel traffic within Puget Sound can be maintained during a period of Y2K disruption.

The area identified as the most likely to experience Y2K related failure is the WAN. Therefore, a concept of operations was developed by the command to enable the unit to continue operations in the event the WAN becomes inoperative.

Step 1 – Establish Major Objectives

The major objective for the exercise was to ensure continued operations, prevent collisions and groundings, and to protect to the area's ecology in the event of a Y2K failure. Additional objectives included:

- *Exercise Area of Highest Y2K Related Risk* – The VTSPS exercise simulated a malfunction of the WAN.

- *Evaluate Ability to Deploy Personnel to Remote Sites* – The exercise was designed to test the deployment of personnel to remote sites. This involved a full analysis of logistics issues.

- *Determine Feasibility of Monitoring Traffic Remotely* – The exercise was designed to evaluate the feasibility and effectiveness of using remote site equipment to monitor and advise vessel traffic.

- *Test Alternate Communications Capabilities* – The exercise was designed to analyze the range and quality of transmission for the VHF radios, cell phones, and satellite based communications equipment between remote sites and the VTC.

- *Evaluate Interagency Procedures and Communications* – The VTSPS maintains a strong partnership with the Canadian Vessel Traffic Services. The exercise was designed to test the communications capabilities between the organizations and to evaluate procedures for traffic hand-off within international sectors.

- *Evaluate Internal Procedures and Communications* – The exercise was designed to test coordination and integration of contingency plans between USCG units including a test of a joint watch center that would be established with VTSPS, MSO, and the Group during a Y2K incident.

Step 2 – Identify Exercise Participants

Participants are listed in the table below. There were no vessels or commercial port stakeholders involved in the exercise.

Participant Type	Participant
Canadian Government	
	Canadian Vessel Traffic Services (CVTS)
United States Coast Guard	
	Vessel Traffic Service (VTS), Puget Sound
	Marine Safety Office (MSO), Puget Sound

Table 1 – Seattle Exercise Participants

Additional Notes:

- The exercise involved 22 off-duty Sector Operators, six off-duty Watch Supervisors, three Command staff, and two civilian contract technicians.

- The exercise required over 132 man-hours from off-duty personnel and approximately 30 hours of over time to compensate civilian employees.

- Sector Operators traveled in excess of 70 miles to reach the most distant remote site.

Step 3 – Develop Exercise Scenario(s)

The Seattle exercise consisted of two scenarios:

- *WAN Failure* – This scenario simulated a WAN failure that disrupts communication links between the VTC and remote sites. This causes the VTSPS to implement contingency plans that involve a transition from centralized to decentralized vessel traffic management. This was a functional exercise scenario designed to focus on a single function or activity under the contingency plan.

- *Vessel Adrift* – This scenario simulated a steering casualty on an 800 foot container vessel that causes the vessel to run adrift. The MSO receives notification of the situation but discovers that phone lines are inoperable. This causes the MSO to implement contingency plans related to internal communications procedures with the VTC. This was a tabletop exercise scenario, no vessel was actually adrift during the exercise.

Step 4 – Conduct Exercise Activities

This section presents the primary Seattle exercise activities, by scenario. Note that Y2K related system and equipment casualties described in the scenarios were simulated.

- *WAN Failure*
  - Personnel were deployed to five remote VTS sensor sites: Port Angeles, Point, Wilson, Whidbey Island, West Point, and Ruston. A radio check was conducted after personnel arrived at each site.

  - The VTC watchstanders and remote site personnel verified the vessel traffic within their areas of control. When remote sites confirmed that equipment and communications were operational and that all traffic was accounted for, the site assumed control of the traffic within their area.

  - Remote site personnel monitored traffic movement and advised vessels using local equipment, coordinated hand-offs with adjacent sectors, and communicated as required with the Canadian traffic control centers. Hand-off information was recorded on paper forms.

  - Some sites encountered problems communicating with adjacent sites and with the vessels. When sites reported problems, the VTC watchstanders assumed vessel control for that area until equipment and communication issues were resolved.

  - The VTC maintained total traffic awareness and coordination during the drill. A manual plot board would have been used in the event of a software failure. For safety, the VTC continued to monitor traffic at all times during the exercise.

- *Vessel Adrift*
− A remote site identified a vessel adrift to the VTC. The VTC contacted MSO personnel with the vessel information.

− The MSO relocated with VTC to utilize the VHF communications equipment and provided instructions to the vessel. This allowed the MSO to maintain Captain of the Port control over the vessel despite a failure of phone lines at the MSO.

Step 5 – Conduct Post Exercise Analysis

Supervisors at the remote sites, VTC watchstanders, and Command staff evaluated the exercise and determined what changes, if any, were required to VTSPS contingency plans. The results of the post exercise analysis are provided in the table below.

No.	Observation/Explanation	Lesson Learned	Recommended Action
1	Rudimentary analog maintenance radars not as sophisticated.	The lack of sophisticated traffic management tool in the maintenance radar does not provide for the same level of confidence in managing traffic and providing detailed traffic advisories.	Use geographic call in points to keep track of vessels as they transit gaps in radar coverage areas.
2	Communications were maintained through a combination of land based VHF radios with repeater sites, cellular phones, and satellite phone systems. These elements essentially replaced the WAN communications grid.	Overall, communications proved effective for command and control, vessel traffic management, coordination with the MSO, and coordination with CVTS. However, some gaps or blind spots were identified.	VTSPS will investigate relocating and raising radio antennas at selected sites to minimize these problems.
3	Two teams of personnel were assigned to each remote site.	A rotation of personnel during the exercise minimized fatigue and allowed a larger number of individuals to gain experience with remote site equipment.	Maintain similar procedures for exercises and actual emergencies.
4	Logistics is a major factor in redeploying personnel and equipment.	Additional chairs, subdued lighting, and traffic management plotting tools would create a more effective and efficient environment at remote sites.	These items will be purchased in advance of the critical Y2K dates.

Table 2 – Seattle Exercise Results

The exercise was a success because it provided new information to the VTSPS that will enable it to improve its contingency plans and increase its readiness to respond to a failure situation. VTSPS expects to plan another full exercise with Canadian participation in the near future. One of the goals of that exercise will be to determine the best use of an afloat asset, if assigned, to augment five staffed remote radar/communication sites.

For More Information

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